

TWO NEW SPECIES OF TABANUS FROM THE ANGLO-EGYPTIAN SUDAN.

BY ERNEST E. AUSTEN.

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The types of the species described below have been presented to the British Museum (Natural History) by Mr. H. H. King, Government Entomologist, Anglo-Egyptian Sudan, by whom coloured figures of both species will shortly be published in the forthcoming Fourth Report of the Wellcome Tropical Research Laboratories, Khartoum.

Genus *TABANUS*, Linn.

Tabanus camelarius, sp. n.

♂ ♀.—Length, ♂ (1 specimen) 12·5 mm., ♀ (2 specimens) 11·6 to 12·8 mm. ; width of head, ♂ 4·25 mm., ♀ 3·75 to just under 4 mm. ; width of front of ♀ at vertex 0·6 mm. ; length of wing, ♂ 8·75 mm., ♀ 8·25 to 8·4 mm.

Somewhat narrow-bodied, elongate species; dorsum of thorax mouse-grey in ♂, blackish slate-coloured in ♀, and in both sexes longitudinally striped with light grey, though less distinctly in ♂ than in ♀; dorsum of abdomen dark brown in ♂, clove-brown or blackish brown in ♀, and in both sexes with three longitudinal stripes, which are smoke grey in ♂ and whitish grey in ♀; one stripe is median and continuous; midway between this and lateral margin on each side is a stripe, which is largely composed of disconnected, longitudinally elongate spots: venter light grey, with a broad, blackish, longitudinal stripe, interrupted on hind margins of segments and in ♀ very conspicuous, in ♂ much less distinct and inconspicuous unless viewed from behind; femora slate-grey, with a whitish grey bloom, tibiae partly cream-buff, front tarsi entirely black, middle and hind tarsi blackish brown, except proximal two-thirds of first joints, which are cream-buff.*

Head: frontal triangle in ♂ drab-grey, crossed by an ill-defined brownish band on a level with and just below upper margin of lower third of eyes; front in ♀ grey (drab-grey between base of antennæ and frontal callus), clothed on upper half with minute black hairs; face and jowls whitish grey in both sexes and clothed with white hair, in ♀ an indistinct dusky mark between base of antenna and eye on each side; *eyes* in ♂ (dried specimen) with small facets (occupying lower third and posterior border) dark brown, and with the transversely fusiform area occupied by the large facets, which is divided medially by the junction of the eyes, drab above and on each side, and crossed horizontally by a curved, dark brown band, which does not reach the postero-lateral margins of the area, and below the admedian two-thirds of which the large facets are paler; eyes in ♀ (dried specimen) with two narrow, dark bands across centre; in ♀, *front* moderately broad (inner margins of eyes almost parallel, converging very slightly

* For names and illustrations of colours see Ridgway, "A Nomenclature of Colors for Naturalists" (Boston: Little, Brown & Company, 1886).

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below), *frontal callus* clove-brown, shining, extending from eye to eye and nearly quadrate in shape, though slightly higher in middle line than at sides, in rubbed specimens connected in middle line above with a small black spot in centre of front, above which and not connected with it is a second and much smaller, quadrate, median, blackish spot near vertex; *palpi* in both sexes cream-coloured, terminal joint in ♂ pyriform, clothed with whitish hairs and also on lower portion of distal two-thirds of outer surface with black hairs; terminal joint of palpi in ♀ swollen above and ending in a sharp point below, clothed on outer surface with minute black hairs, mixed with minute whitish or yellowish white hairs; first and second joints of *antennæ* in both sexes isabella-coloured, clothed with minute black hairs, third joint in ♂ narrow and elongate, its proximal portion cinnamon, its terminal annuli brown; expanded portion of third joint in ♀ moderately broad and more or less russet-brown, terminal annuli dark brown or clove-brown. *Thorax*: dorsum in ♂ thinly clothed with erect brownish or blackish hair, mixed with yellowish hairs on central third in front of transverse suture; dorsum in ♀ thinly clothed with appressed yellowish hairs, especially on central third and in front of suture; the grey stripes on dorsum consist in both sexes of a narrow median line extending from front margin to transverse suture, a broader and complete stripe on each side of this, midway between middle line and lateral margin, and a still broader stripe on each lateral margin, which includes the humeral and extends to the postalar callus; postalar calli and region immediately above base of each wing clothed with whitish hairs; from humeral callus to base of wing on each side runs a narrow, dark brown, horizontal stripe, which is clothed with dark brown or black hair; pleuræ and pectus light grey, and clothed in both sexes with white hair; scutellum agreeing in ground colour of its upper surface with that of remainder of dorsum, grey on lateral and hind border, in ♂ thinly clothed above with erect brownish hairs, mixed with appressed yellowish hairs near front margin, and with whitish hair on lateral and hind border, in ♀ clothed above with appressed yellowish hairs mixed with some more erect blackish hairs. *Abdomen*: median grey stripe on dorsum extending from base to hind margin of sixth segment, and clothed with, minute, appressed, yellowish hairs; grey stripe between median stripe and lateral margin on each side broken up into spots after second segment, and terminating, like median stripe, on sixth segment, although in ♂ (at least in case of type) the spots on fifth and sixth segments are invisible unless abdomen be viewed at a low angle from behind; the spots on the third and following segments forming the paired stripes situated more or less close to or even in contact with the front margins of the segments, but widely separated from the hind margins; lateral borders of first six segments grey, posterior angles and extreme hind margins of second to sixth segments inclusive narrowly cream-buff; paired grey dorsal stripes, grey lateral margins, and grey portion of venter clothed with minute, appressed, whitish hairs; ventral surface of last three segments, except hind margins of fifth and sixth, greyish clove-brown, hind margins of ventral scutes of second to sixth segments inclusive cream-buff. *Wings* hyaline, *stigma* elongate, faint, and inconspicuous. *Squamæ* isabella-coloured. *Halteres*: knob buff or cream-buff, sometimes brownish at base, stalk brownish. *Legs*: coxæ grey, clothed like femora with whitish hair; lower surface and distal fourth of front tibiæ black,

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distal extremities of middle and hind tibiæ (in ♀ sometimes also lower surface of hind tibiæ) clove-brown; front tibiæ in ♀, except distal fourth, clothed with minute, appressed, glistening white hairs, pale portions of middle and hind tibiæ in ♀ clothed with similar yellowish white hairs.

ANGLO-EGYPTIAN SUDAN: type of ♂ from Khor Arbat, Red Sea Hills, 9. IX. 1909, type of ♀ and one other ♀ from same locality, 11 & 12. IV. 1910, "attacking camels" (*H. H. King*).

Tabanus camelarius is allied to and superficially resembles *T. gratus*, Lw., but, in the female sex at any rate, is distinguishable *inter alia* by the larger size, more conspicuous appearance, and much darker coloration of the frontal callus, which is clove-brown instead of raw-umber-coloured or mummy-brown; by the antennæ being darker, with a less prominent angle on the third joint, and the terminal annuli dark brown or clove-brown instead of ochraceous-rufous; by the median grey abdominal stripe (except on the sixth segment) being of practically uniform width throughout, instead of conspicuously expanded on the third and fourth segments, and by the paired grey abdominal stripes being, instead of continuous, broken up into disconnected spots after the second segment; and lastly by the femora being slate-grey, instead of isabella- or fawn-coloured.

Tabanus mordax, sp. n.

♀.—Length (5 specimens) 12 to 15.4 mm.; width of head 3.75 to 5 mm.; width of front at vertex just under 1 mm. to 1 mm.; length of wing 8.2 to 10.4 mm.

Slaty-black: dorsum of thorax covered with a thin greyish bloom, striped with grey, and clothed with minute, yellowish or whitish hairs; dorsum of abdomen with a more or less distinct, median, longitudinal stripe (composed of elongate, grey triangles, with their apices directed forwards and truncate), between which and lateral margin on each side is a longitudinal series of very conspicuous and sharply defined, oblique, oval, light grey spots; lower portion of front immediately above antennæ produced into a very prominent, shining black transverse protuberance, on the under surface of which the antennæ themselves are situated.

Head: front and occiput grey, face white and clothed with white hair; front relatively broad above, narrower below, its uppermost portion clothed with short, black hairs; shining black supra-antennal protuberance extending from eye to eye, and including the sub-callus (the area immediately above the antennæ) and the region between each antenna and the corresponding eye; lower margin of shining black protuberance straight (sometimes emarginate in centre below antennæ), extending from eye to eye just below the level of the antennæ, and forming a sharp contrast with the white face; frontal callus (situate just above but not in contact with supra-antennal protuberance) raw-umber-coloured, transversely elongate and flat; palpi cream-coloured, proximal joint clothed with long, white hair, terminal joint swollen, not elongate but ending in a sharp point, and clothed on outer side with short, appressed, glistening white hairs, mingled with minute black hairs towards distal extremity; antennæ entirely black, clove-brown or dark brown, expanded portion of third joint not particularly broad, and the angle on its upper margin not prominent. Thorax: dorsum

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grey on front margin, and with a grey stripe on each side, a narrow grey median line extending from front margin to a little beyond transverse suture, and a complete grey stripe between median line and each lateral stripe; viewed from the side, an ill-defined dark brown horizontal mark, partly clothed with black hair, is seen extending from base of wing towards humeral callus; pleura and pectus light grey, and clothed with white hair; scutellum clothed above with appressed, yellowish hair. *Abdomen*: the series of truncate triangles forming the median dorsal stripe extends from the base of the abdomen to the hind margin of the fifth segment, and the triangles, like the spots, are clothed with appressed yellowish hair: the paired light grey spots are present on the first six segments, and are disconnected; spots on first segment connected with grey covering of basal angles, spots on following segments usually connected, more or less distinctly, with hind margins; posterior angles of first six segments, and extreme hind margins of second to sixth segments inclusive cream-buff; lateral margins of first four segments grey, clothed, as also are posterior angles of first six segments, with whitish hair; *venter* grey, first four segments and posterior angles of fifth clothed with minute, appressed, whitish hairs, sixth and seventh segments and median portion of fifth clothed with black hair; a broad slaty-black median stripe extending from front margin of second to hind border of fifth segment; sixth and seventh segments (except hind border of sixth) black; hind borders of second to sixth segments inclusive cream-coloured. *Wings* hyaline, veins dark brown; *stigma* elongate, dark brown and conspicuous; *base of anterior branch of third longitudinal vein without an appendix*. *Halteres*: knob cream-coloured, dark brown at base; stalk cream-buff, dark brown at distal extremity. *Legs* slate-grey, tarsi and distal extremities of tibiae clove-brown or black, front half of proximal two-thirds of front tibiae cream-coloured, corresponding portion of middle tibiae and proximal two-thirds of first joint of middle tarsi cream-buff, extreme base of first joint of hind tarsi also cream-buff, coxæ, femora, and front surfaces of tibiae (except distal extremities) clothed with whitish hair.

ANGLO-EGYPTIAN SUDAN, and SOMALILAND: type and two other specimens from Khor Arbat, Red Sea Hills, Anglo-Egyptian Sudan, 9, 10. IX. 1909 (*H. H. King*); a fourth specimen from Karora, Red Sea Province, Anglo-Egyptian Sudan (near the frontier of Eritraea), February, 1909 (forwarded by Mr. H. H. King); a fifth specimen from Heile Madow, R. Webi, Somaliland, 19. XI. 1908 (*Dr. R. E. Drake-Brockman*).

At Karora, according to information supplied by Mr. King, *Tabanus mordax* and *T. leucostomus*, Lw., which it closely resembles, are termed "lamas" by the natives, by whom the bites of both species, as also those of *Pangonia magretti*, Bezzi, are said to be fatal to camels.

The resemblance between *Tabanus mordax* and *T. leucostomus* Lw.*, is so close as to suggest that the former may ultimately prove to be a *form* of the

* Syn. *T. psuscensis*, Jenn.—*T. leucostomus*, Lw., the type of which was obtained on the Kuisip River, German S.-W. Africa, also occurs in Somaliland and Abyssinia, while a female of this species, taken at Karora, Red Sea Province, Anglo-Egyptian Sudan, at the same time as the female of *T. mordax* referred to above, was presented to the British Museum (Natural History) with the latter, by Mr. H. H. King.

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latter, rather than a distinct species. While this is certainly possible, it seems for the present advisable—until the question can be definitely decided by the examination of further material belonging to both sexes—to concede *specific* rather than merely *varietal* rank to *T. mordax*. Although on a cursory examination *Tabanus mordax* may easily be mistaken for *T. leucostomus*, since, in the female sex at any rate, the abdominal markings in the two cases are identical, the former may be distinguished from the latter by the great development of the supra-antennal protuberance, and by the absence of an appendix to the anterior branch of the third longitudinal vein.

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